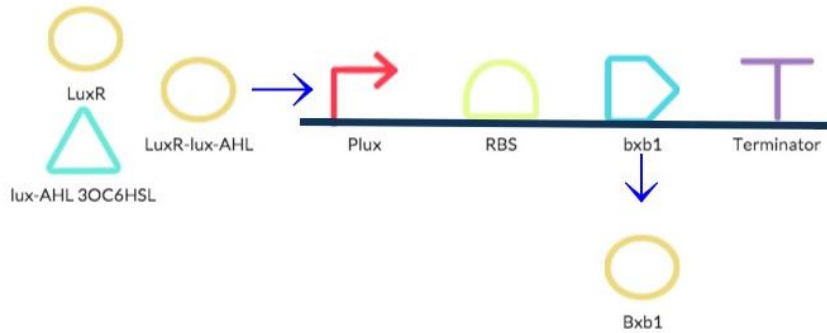


Biosensor-LuxR-3OC6-HSL or LasR-3OC12-HSL complexes



LuxR-lux-AHL and LuxAHL:

$$\frac{d[\text{LuxR-lux-AHL}]}{dt} = k_{R_{lux}}[\text{lux-AHL 3OC6HSL}] - k_{-R_{lux}}[\text{LuxR-lux-AHL}] - d[\text{LuxR-lux-AHL}]$$

LuxR-lux-AHL and LuxR:

$$\frac{d[\text{LuxR-lux-AHL}]}{dt} = k_{R_{lux}}[\text{LuxR}] - k_{-R_{lux}}[\text{LuxR-lux-AHL}] - d[\text{LuxR-lux-AHL}]$$

Bxb1 and LuxR-lux-AHL:

$$\frac{d[\text{Bxb1}]}{dt} = \alpha_{Bxb1} \chi_{plux1}[\text{bxb1}] \frac{[\text{LuxR-lux-AHL}]^n}{k_{R_{lux}}^n + [\text{LuxR-lux-AHL}]^n} - d[\text{Bxb1}]$$

Parameter Table

Symbols	Parameters	Values and Units
d_LuxAHL	Degradation rate of lux-AHL 3OC6HSL	0.004 min ⁻¹
alpha_LuxR	Production rate of LuxR	0.005 uM*min ⁻¹
d_LuxR	Degradation rate of LuxR	0.0231 min ⁻¹
k_Rlux	Production rate of LuxR-lux-AHL	0.1 nM ⁻¹ *min ⁻¹
k_{-Rlux}	Binding rate constant	10 min ⁻¹
d_Rlux	Degradation rate of LuxR-lux-AHL	0.0231 min ⁻¹
Alpha_Bxb1	Production rate of Bxb1	0.588 min ⁻¹
d_Bxb1	Degradation rate of Bxb1	0.01 min ⁻¹
k_Bxb1	Bxb1 repression coefficient	0.1 min ⁻¹
Alpha_sfGFP	Production rate of sfGFP	0.473 min ⁻¹
d_sfGFP	Degradation rate of sfGFP	0.012 min ⁻¹
Alpha_LuxI	Production rate of LuxI	0.621 min ⁻¹
d_LuxI	Degradation rate of LuxI	0.018 min ⁻¹
n	Hill coefficient	2

Reference: http://2014.igem.org/Team:ETH_Zurich/